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MISCELLANEOUS BIRD NOTES FROM MONTANA

By CHARLES L. WHITTLE

WITH TWO ILLUSTRATIONS

DURING the spring of 1921, from May 14 to June 5, the writer was occasionally afield in the vicinity of Great Falls, Montana, and much more extensively so in the Little Belt Mountains, about fifty-five miles southeasterly from that city. Great Falls is situated on the Missouri River where the stream debouches from the Rocky Mountains into a broad, inter-mountain valley, at this point approximately 3300 feet above the sea. The valley bottom is treeless except along water courses, and a considerable portion of it is under cultivation.

The section of the mountains visited lay on and near the head-waters of two or three small torrential streams flowing into Belt Creek near Neihart; in particular, Carpenter Creek, which drains the north slope of "Neihart Baldy", a mountain about 8000 feet high. Barring narrow strips along streams occupied by a small deciduous growth, and occasional "mountain parks", this area is almost completely covered with lodge-pole pines, nearly all ten to twenty years old, in most places replacing an older growth of heavy timber of the same species, largely destroyed by fire.

Much of this mountain country was still covered with snow on May 14, and on June 5 snow was still present as drifts on northerly slopes of peaks and ridges occurring at elevations of over 7000 feet. The region visited during this period has an elevation ranging from 5500 to 7300 feet. My visit was therefore fortunate in the matters of time of year and snow conditions, to witness the gradual coming of the birds that visit these somewhat isolated mountains for nesting purposes or pass through them in migration.

Such notes as follow were made incidentally, in connection with other field work in the region mentioned above, and are given in part to show arrival dates for some species and the breeding distribution of others as affected by elevation. The order given follows the American Ornithologists' Union *Check-List*, third edition.

Actitis macularia. Spotted Sandpiper. Two seen near Neihart at a small pond on Belt Creek, May 29, at an elevation of 5700 feet. Here a courtship performance was witnessed. One of the birds, judged to be a male, was seen standing on a long, inclined timber, while another, presumed to be a female, fed close by along the shore. The male first walked the length of the timber and then flew to another one, where he depressed and spread his tail, and, without teetering, stalked slowly along its entire length, with head bent low. Quiet-water shores are favored by this species and there are accordingly few that summer along this turbulent stream.

Ceryle alcyon. Belted Kingfisher. Just one seen, May 18, on Carpenter Creek near a beaver dam. The species is scarce here in summer on account of lack of suitable fishing grounds.

Dryobates villosus monticola. Rocky Mountain Hairy Woodpecker. A pair was encountered at 7200 feet in a stand of dead timber. The race was readily recognized by its unspotted wing coverts and tertials. Birds were courting. I watched one preen its feathers for some five minutes while standing vertically on a tree trunk, and it did a very thorough job, most of the back, tail, wings and under parts being gone over, the throat and head receiving a vigorous scratching in lieu of treatment with the mandibles.

Phalaenoptilus nuttalli nuttalli. Poor-will. Two were met with on May 26, in small, thickly-growing pines at an elevation of 6800 feet. No doubt just arrived.

Tyrannus tyrannus. Kingbird. First one seen June 5, in Missouri River valley near Great Falls. This species was not found above 3400 feet and was confined to rather open country near wooded streams.

Cyanocitta stelleri annectens. Black-headed Jay. Identification was based on the published range of this race. Found on May 14 in small lodgepole pines at an elevation of 5400 feet, probably nesting. Its squeal, like the Red-tailed Hawk, deceived me completely. As I entered the pinery the jay, presumably a male, flew about very excitedly uttering a variety of reproachful notes and among them was the cry of the Red-tail. I could not help wondering if, as is generally believed, this cry is really an imitation of the hawk's, whether it were not being used in an attempt to drive me away as a presumed enemy in hopes of saving its nest from attack, the jays having learned by experience that some of their enemies, such as the pine squirrel, when about to rob their nests, are occasionally frightened away or captured by this hawk.

Icterus bullocki. Bullock Oriole. A mated pair seen June 5 in Great Falls Park, the male in first nuptial plumage. Not present here June 1.

Carpodacus cassini. Cassin Purple Finch. Observed range from 5600 to 7300 feet. Not yet nesting (June 1). Abundant.

Junco hyemalis mearnsi. Pink-sided Junco. From May 18 to June 4 found ranging from 5600 to 7300 feet. Not yet nesting. Very plentiful.

Melospiza lincolni lincolni. Lincoln Sparrow. One male arrived May 26. Sang for hours from a group of small aspens at an elevation of 6000 feet. Appeared to have selected his nesting area.

Calamospiza melanocorys. Lark Bunting. This species arrived in the Missouri valley between Great Falls and the village of Belt on May 17, in large flocks composed of both sexes in nuptial plumage. The birds generally remained in flocks at least up to the first of June.

On May 31 as I left the train at Gerber, which is merely a junction point in the Missouri valley (elevation 3376 feet) at 4 P. M., during a slight drizzle, I was welcomed by (to me) an unusual bird chorus, a veritable carnival of song. Western Robins, Red-winged Blackbirds (presumably *Agelaius phoeniceus fortis*), and Western Meadowlarks sang from telegraph poles, the fence posts were capped by singing Western Vesper Sparrows and Song Sparrows, while all about the station in every direction, first here and then there, often in a dozen places at once, Lark Buntings shot into the air, usually from the ground, as though propelled from guns, pouring out the most infectious and passionate song, perhaps, sung by any bird in the United States. This song is far from simple and its opening alto notes give it a noticeable richness. Within one hundred feet of the station on this occasion there were at least a hundred singing males, and with them there were, no doubt, a similar number of silent and inconspicuous females feeding on the ground. If the females were impressed by the singing, or were even aware of it, their behavior did not indicate it.

In one weedy field I counted twenty singing males. They sing while resting on the ground, on weeds, or on fence posts, but commonly the song begins as a bird leaves the ground, moving directly upward at an angle of about 50° to a height of ten to thirty feet and occasionally higher. The descent is slower, usually indirect and more gradual, the song culminating as the bird again comes to rest on the ground or on a fence post. The flight song appears not to differ from the perch song except in the matter of speed, the former being given more rapidly. Very frequently these flights, which are doubtless courtship performances, are accompanied by unusual wing motions. Sometimes the wings are set at the apex of the flight and are often upturned over the back in an acute V, after the habit of McCown Longspurs, with which the Lark Buntings are often associated during such exhibitions, the wings being slowly lowered as they glide or float to the ground. At other times, in place of setting the wings, the birds fly downward, the wing strokes not being perfectly synchronized, giving the birds a rocking motion. This alternation of wing strokes, which is only practised during flight singing, is often at a maximum, namely, when one wing is at the top of its describing arc and the other is at the bottom of its arc. J. A. Allen (in Coues, Birds of the Northwest, p. 164) has apparently called attention to a phase of this phenomenon, describing it as a "peculiar flapping of the wings," and Dr. Townsend (Auk, vol. 29, 1912, p. 286) points out that the Chimney Swift regularly flies in this manner, and that some very young birds (nestlings), crows and grackles being examples, swim by alternate wing strokes if placed in water. The explanation is given that this method of propulsion is primitive, and, according to evolutionary law, is still exhibited by very young birds of many species.

F. H. Allen (Auk, vol. 36, 1919, pp. 528-536) has advanced the theory that the ecstatic mating song is an elaborated older song, one which has been evolved from the perch song. Nevertheless flight songs often contain even more primitive sounds, such as call notes, and it is interesting to note that alternate wing motion in birds, which is a survival of the alternate leg motion of their reptilian ancestors, is still occasionally practiced by Lark Buntings during their flight singing.

The Lark Bunting's song, in common with that of most birds, has been

variously described, but not all such differences in descriptions are due to the personal equation, for birds have an exasperating way of singing unusual songs to the confusion of the bird student. J. A. Allen (Bull. Mus. Comp. Zool., vol. 3, 1871-76, p. 137) says of this species: "Its notes are so similar to those of the Chat (*Icteria v. virens*) as to be scarcely distinguishable from them." I did not observe this similarity, my note book reading: "Their song begins with rich, low, whistled notes followed by trills and other whistled notes, higher-pitched than the opening ones, very similar to certain portions of a Canary's song, alternating with other notes suggesting the bubbling song of the Long-billed Marsh Wren and ending as the bird alights, with a fine trill of an exceedingly high pitch."

As I have stated, this species arrived in flocks on May 17 and the birds were still in flocks on June 1, but by June 5 the dispersal to their nesting areas had taken place. Allen (*loc. cit.*, p. 137) noted that they appeared to nest in colonies about Fort Hays, Kansas. Around Great Falls this tendency was marked, five or six pairs nesting so near together that the males often sang from a series of fence posts at the same time.

The species nested rather locally all over this section of the Missouri valley, up to, but not in, the wooded foothills of the Rockies (elevation approximately 3600 feet). They are birds of the open prairie, selecting nesting sites in weedy tracts, under thick cover of tumble weed (*Cycloloma atriplicifolium*) accumulated by the wind against some obstruction, usually a wire fence, or even under a single plant of this species over-turned on the prairie. Nest-building begins during the last days of May, and a completed nest was found on June 1 which contained three eggs on June 4. This nest was built entirely of grass and, as is customary, was placed on the ground with its rim flush with the surface, the inside diameter being two and one-quarter inches, and the depth the same.

The appearance of Lark Buntings in great abundance about Great Falls in the spring of 1921 was heralded by people generally thereabouts as a harbinger of good crops, for the birds are stated to have been very infrequent in this section of the state for years during seasons of bad crops. They are locally called "Bobolinks".

Vireosylva gilva swainsoni. Western Warbling Vireo. First met with June 3 at Armington, along the foothills of the Little Belt Mountains, elevation 3500 feet.

Vermivora celata celata. Orange-crowned Warbler. This warbler does not appear to have received much attention at the hands of ornithologists, particularly in the matter of its song. It was my good fortune to find two of this race, both males, on their nesting grounds about the time of their arrival, namely, May 17. The region selected by them was a wooded, triangular ridge, lying between two mountain streams, sloping easterly (thus being early freed from snow), at an elevation of 5600 feet. Small willows and aspens, ten to twenty feet high, covered the ridge and grew for several hundred feet in every direction along the mountain slope, and about the blossoms of the former the warblers were searching for their insect food.

Each bird had apparently selected his "general nesting site", or nesting area, and these were about 500 feet apart. Both birds sang at short intervals for the five hours they were under observation; one confined its singing and

feeding to a small tract not over forty feet across, and appeared not to visit or be visited by a mate. An effort was made to learn if the birds were in fact mated or that nesting had already begun, but no evidence of either was found. I believe that they were fresh from their winter quarters, that they had selected the general site for their nests and were awaiting the arrival of the females, after the manner of Red-winged Blackbirds and other species. This race arrives on the average at Columbia Falls, Montana, May 5, and at Aweme, Manitoba, May 7.

The birds commonly procured their food from two to ten feet from the ground. They were not excessively active; in fact, for warblers, they were

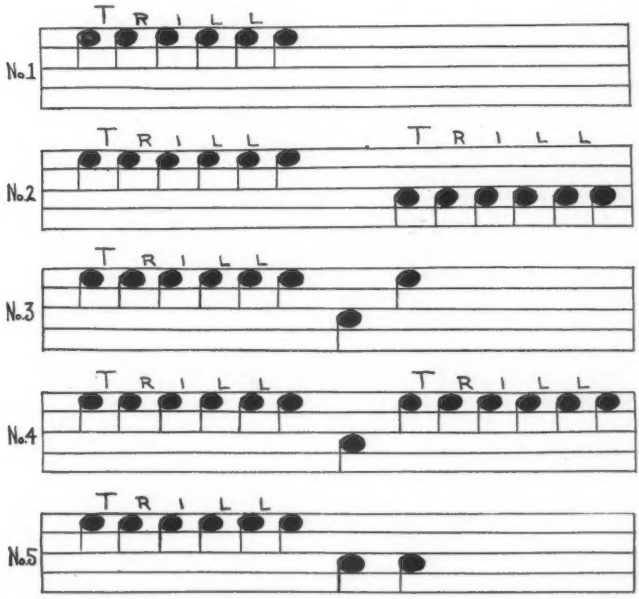

Fig. 29. Song-forms of the Orange-crowned and Lutescent Warblers. Numbers 1-4, Orange-crown; number 5, Lutescent Warbler. The last two notes of number 5 are given with an appreciable interval between.

fairly moderate in their movements. The song of one Orange-crown was studied carefully at short range. This bird had a single song subject to four variations, each including at least one trill. Each trill was on a single note, but one variation had two trills about four tones apart, and another had two trills on the same note separated by a lower note. The pitch was near that of the Nashville's song, that is, at about the upper limit of the piano. For this type of song the trills were not given with excessive speed, but the number of notes in each could not be counted with certainty. All the notes appeared to have the same length, the whole having such an exceedingly simple arrangement that I am attempting to represent the four variations below, indicating,

however, only their *form* (fig. 29, nos. 1, 2, 3, and 4). The musical staff and notes are used as a matter of convenience and not with the intent of giving the songs in musical notation. If these song-forms prove to be the common ones of the Orange-crown, my hope is that they may assist in identifying the bird in the field, perhaps better, at least with average bird students, unacquainted with music, than by representations of the songs at the hands of a skilled musician.

Vermivora celata lutescens. Lutescent Warbler. On the same date that the Orange-crowns were found, and farther up the mountain, about a half a mile away, there was a single bird of this race singing from, and feeding in, thick chaparral near the ground. During the half hour he was under observation he sang but one song which closely resembled the Orange-crown's opening trill (see fig. 29, no. 5), but closing with two lower and slower notes suggesting *swee-swee.*

This race is not known to nest as far east as the Rockies and hence was probably migrating; but an isolated singing male at this season suggests that the bird was on its nesting grounds. Some nesting dates elsewhere are: Alameda County, California, April 5; and Tacoma, Washington, May 3-28.

The bird was strikingly colored, of very yellow plumage having an olive cast, and it appeared to be specifically distinct from *celata.* As I examined the bird at short range through a field glass it seemed to me that the two races were nesting here side by side without intergradation.

Dendroica auduboni. Audubon Warbler. First appeared at 5600 feet, May 19. Ranges to 7100 feet. Here a mountain species, confining its summer range to the medium-sized lodge-pole pines.

Regulus calendula calendula. Ruby-crowned Kinglet. Occasional at elevations of 6400-6600 feet in large conifers along mountain streams. They were heard singing every day, but the song of the eastern bird was in no instance given in full, only its opening notes. The terminal three to four times repeated closing notes, often anglicised as "Look-a-me, look-a-me" etc., in no case were sung. A. A. Saunders (Auk, vol. 36, 1919, pp. 525-528) has written at length on the geographical variation shown in this kinglet's common song, and I am glad to add my testimony to the same effect. Saunders says that the Ruby-crown sings this abbreviated song wherever heard throughout the western half of Montana, an area including the Little Belt Mountains. Bird students who are afield in the Cordilleras, particularly easterners, should map the range of this most interesting and unusual kinglet, which appears to occupy many thousand square miles of territory, and, while not known to differ subspecifically from the eastern bird, yet possesses a less complex song. As the eastern Ruby-crown's song appears to be an elaboration of that sung by the Montana birds, it may be fairly argued on evolutionary grounds that they (and the Pacific Coast races too if their song is indistinguishable from that of the eastern birds) have descended from the Montana birds. Those taking the opposite view will see in the less complex song of the Montana birds evidence of devolution rather than evolution.

Myadestes townsendi. Townsend Solitaire. On May 15 my attention was attracted to the Solitaires by hearing them sing as they were migrating northerly over the mountains as single birds and in pairs. They commonly flew well above the mountains so that identification was made by their songs. A day

or two after this, at an elevation of 7000 feet, a single bird was seen at a little camp belonging to a prospector, consisting of a tent pitched amid scattered pines, with snow all about excepting where the sun had locally exposed the forest floor. A number of men with a pair of horses were working here, felling trees and dragging logs, when the Solitaire alighted close to us on the ground, flying from a perch on the top of a tall pine, where he had been singing. I was able to approach within fifteen feet of the bird when he flew, ascending above the pines in little curved flights first to the left and then to the right as if confused, or uncertain where he wished to go. Later, this peculiarity was found to be much elaborated as an accompaniment to the flight singing of the species, used both in ascending and descending. A number of times on this date a Solitaire could be heard singing high in the air and well above us up the mountain, and sometimes it could be seen coming down the steep slope just over the trees with great velocity, alighting suddenly on a tree top, when he would again burst into song. On May 24 I witnessed the beginning of a song-flight, no doubt a courtship performance, of which the precipi-

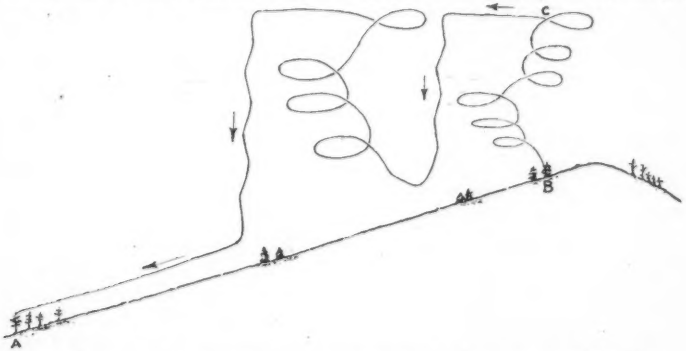

Fig. 30. Diagram of song-flight of the Townsend Solitaire. A-B, 1420 feet; B-C, 500 feet. Elevation of ridge (B), 7300 feet.

tate descent over the tree tops just described is the termination, although at that time the birds appeared to have mated.

I was standing on a nearly treeless ridge, at an elevation of 7300 feet, when a Solitaire which was singing close by on a stunted pine, flew upward in two series of irregular spirals. The first series was made by circling to the left, and the second series by circling to the right, as shown diagramatically in figure 30. By this method the bird mounted to a height of perhaps 500 feet, singing at intervals. Then he started off as though to leave the vicinity, when, suddenly and with astonishing velocity, he plunged downward, apparently with set wings, in a succession of steeply-pitched zigzags, almost to the ground, and then turned abruptly upward again in a second series of spirals of the same character, which ended in another zigzag drop of at least 700 feet when he disappeared down the slope.

A little time afterwards the bird reappeared and joined a second one in a group of fire-killed pines standing in deep snow accumulated on the lee slope of the ridge. The pair sat on a dead tree and occasionally dropped to the snow to pick up insects which had become chilled by coming in contact with the cold

surface, acting like a pair of bluebirds. This same afternoon I witnessed again this extraordinary song-flight, which varied only a little from the previous performance. The spirals as before were very irregular in apparent diameter and the angle of the ascent was inconstant. A flight exhibition lasted about two minutes. In the diagram (fig. 30) the symmetry of the spirals is much exaggerated, the actual course of the bird being unknown in detail, but the zigzag lines are not far from accurate. The bird began its song-flight from near the crest of a ridge and ended it with a zigzag drop of 700 feet and a rush down the mountain to a point a quarter of a mile from its place of beginning, only to again burst into song as it alighted on the top of a pine.

On the 20th I ran across a pair of the birds in small, rather open timber, where it was warm and sunny and where the ground was free from snow. The birds did not sing, but were busy searching for food. As before, their bluebird-like method of finding insects was in evidence, and these were pounced upon, whether discerned on the ground or on the sides of tree trunks, or were secured by hovering over some promising spot where one had been discovered. Only one call was heard, a whistled *ick* similar to that made by the Rose-breasted Grosbeak.

Various observers who have written about this species have differed greatly, both as to the character of its song and its seasons of singing. Lack of agreement in describing bird songs is to be expected, as a rule, but the published accounts of the Solitaire's song periods seemingly stamp the species as very abnormal in this respect. The following references are believed to be representative of the many published descriptions:

F. S. Hanford (Condor, vol. 19, 1917, p. 14) has apparently been most fortunate in hearing the bird at its best and he thus describes its song: " . . . The feathers of his breast and throat rose with a song that softly echoed the beautiful voices of the brook, the gurgling eddies, the silver tinkle of tiny cascades, and the deep medley of miniature falls. Infinitely fine and sweet was this rendering of mountain music. At times the song of the bird rose above . . . the water in rippling cadences not shrill, but in an infinite number of runs and modulated trills, dying away again and again to low plaintive whispering notes suggestive of tender memories." This song was heard in early spring. Fuertes (Bird-Lore, vol. 16, 1914, p. 2) says their song is a "blithe, Grosbeak warble, frequently given in lark-like flight." W. L. Dawson (Condor, vol. 21, 1919, p. 14) describes it, as sung from a perch, as "broken and fragmentary, and is rendered in a matter-of-fact, passionless way." Williams (Auk, vol. 7, 1890, p. 98) records the song as "loud, varied, and Thrush-like, and is uttered as they mount rapidly upward in short zigzag flights to a height far above the pines." Knowlton and Ridgway (*Birds of the World*, p. 672) say its song is a blend of the songs of the Purple Finch, the Wood Thrush and the Winter Wren, this description, however, apparently being taken from Coues' *Birds of the Northwest*, and Coues in turn quotes it from a letter written to him by Trippe.

The writer heard these birds sing nearly every day for two weeks, but in the face of such varying descriptions as given above, he hesitates to add still another to the list. Recognizing, however, that a descriptive account of a complex song will convey little transferable knowledge, I will give my impressions for what they are worth. The perch and flight song of the Solitaire is

distinctly a warble which daily reminded me of the simple song of the Cassin Purple Finch (*Carpodacus cassini*), a bird heard here at the same time. The flight song is uttered with great rapidity, with a musical range of less than an octave and, in common with many flight songs, the notes are more or less jumbled. Its duration, by repetition, is of unusual length. The perch song is similar, less ecstatic and slower. As the use of the word "warble" is likely to convey a different idea to different people, it may be well to state what I mean by its use, namely, a rapidly-uttered, often repeated succession of notes very slightly accented, and of narrow musical range. In the case of the Warbling Vireo (*Vireo gilvus gilvus*) the different notes and their range may easily be made out, but the Solitaire's flight warble does not permit of any such analysis.

It is perhaps in the matter of the bird's season of singing that writers are mostly at variance. Hanford (*loc. cit.*, p. 13) says: "So rare a singer is the Solitaire that during my mountain rambles, extending over a period of thirteen years, I have heard the song on only five occasions." Gertken (Auk, vol. 33, 1916, p. 327) found it singing in Minnesota in December. Trippe, quoted by Coues (*Birds of the Northwest*, pp. 95, 96), says: "In summer and fall its voice is rarely heard; but as winter comes on, and the woods are well-nigh deserted by all save a few Titmice and Nuthatches, it begins to utter occasionally a single bell-like note. . . . Toward the middle and latter part of winter, . . . the Fly-catching Thrush delights to sing;" and farther, "Toward spring, as soon as the other birds begin to sing, it becomes silent." Beckham (Auk, vol. 2, 1885, p. 140) also found them entirely silent in Colorado from April 22 to June 1, singing the latter week in September. Coues (*Birds of the Colorado Valley*, p. 47) writes that J. K. Lord heard some twenty Solitaires in song in November at a time when the cold was intense, and Drew (Bull. Nuttall Orn. Club, vol. 6, 1881, p. 86) found them singing in Colorado in October.

The Solitaire is thus reported, by the combined testimony of several observers, to be in song, at least at intervals, from September to February inclusive, and by two observers to be silent during the customary singing season. Others, however, including the writer, find the species quite normal in the matter of having the usual spring singing period. It is difficult to account for the reports that this species does not sing during the courting and nesting seasons.

Hylocichla fuscescens salicicola. *Willow Thrush.* Two birds seen in Great Falls Park, June 1, no doubt recently arrived.

Hylocichla guttata auduboni. Audubon Hermit Thrush. Earliest seen on May 22 in the pineries at 6500 feet elevation. Those familiar with the eastern race will not fail to note the less rufous tail of *auduboni*. They were first heard to sing on June 4 on a steep mountain side. Here their song is heard under the most favorable conditions. I have a feeling of pity for any one who has no ears to hear this master of song: for any one who does not stop and reverently lift his hat as he listens to this anthem singer of the mountains.

Cambridge, Massachusetts, March 2, 1922.

WASTED ORNITHOLOGICAL MATERIAL

By W. H. BERGTOLD

WITH ONE PHOTO

IN THE HISTORY of all sciences it appears that the first and early stages of study in each one concern the larger, more striking and general aspects of the subject; then, successively, come periods wherein the smaller, and yet smaller, details are investigated, without finally reaching any limit to the minuteness of the parts or details examined. Ornithology presents no exception to this rule; its study is now in the stage of examining its smaller, but not thereby less important, details. Hence ornithologists of today and of the future who wish to make substantial contributions to their science will have to work with the more humdrum and less showy particulars.

These are days of efficiency along all lines, days when even the aid of a cinematograph is invoked to reveal useless or awkward ways in the manual application of labor; days when no single item of material is wasted if there be any possibility of its being utilized. There is a widespread belief that men of science work on a higher plane than does the mechanic or laborer; it therefore behooves men of science to justify such a reputation by the higher accuracy and exhaustiveness of their work. In the light of such a reputation, what would be said of the workers in, and the students of, a particular science, many of whom waste many of the opportunities and much of the material coming daily to their hands? Moreover, how much more would be said condemning such a practice, if it were known that many of these opportunities and much of this material might never again be duplicated?

It is the object of these few remarks to draw attention to the fact that large possibilities for the accumulation of a rich mass of invaluable data of various sorts are inherent in the birds annually collected for bona fide scientific purposes, and that a considerable part of such possibilities is habitually wasted by a goodly proportion of bird collectors and preparators.

There is, the writer is given to understand, in one large museum of this country, more than a quarter of a million bird skins; these skins, because of their very existence in this museum, have not been wasted, but on the contrary they have been of great use in the study and development of the science of ornithology. *But*, has each and every one of these skins been made to yield all the valuable data inherent in it when it came to hand as a fresh bird, and before it was "made up" into a skin? Very few would be willing to answer "yes" to this question.

Circumstances of equipment, climate, country, etc., often make it impossible for a collector to secure and record all the data pertaining to a fresh bird; no criticism can lie justly against such a worker. However, a large number of bird collectors and preparators are not handicapped by such conditions or circumstances, and yet they fail utterly to make record of many scientific facts related to each fresh bird. Each bird skin in any collection obviously means the possession of a freshly killed bird, at some time by some one, usually a trained preparator or a scientific collector. It is true that many careful and enthusiastic collectors make every effort to utilize in every way fresh speci-

mens coming to their hands; yet one is safe in saying that a much larger proportion of workers do not do so. The freshly collected bird is skinned and properly labeled, and the matter ends there. Surely every newly collected bird has in it more of importance than that—has valuable aspects and possibilities which can be studied and recorded without in the least depreciating its final value as a collection specimen.

Let us enumerate, in part only, what ways a freshly killed bird can be studied before it is finally "made up" into a "skin".

Of these a few are: 1. Its external parts: A. Its measurements. B. The color of the soft parts and the irides. 2. Collecting its dermal parasites. 3. The weight of the specimen. 4. Preserving its "stomach" and contents. 5. Collecting its intestinal parasites. 6. Taking the bird's body temperature if it be secured before or just at death.

It is quite unnecessary now to discuss some of the items mentioned above, for collectors have long since learned that without data relative to them a bird skin is scientifically almost worthless. It is, however, proper now to touch upon some of the others.

Probably all birds have dermal parasites. It is an extremely simple matter to have on one's work table, or desk, or in one's field kit, a few empty phials (one dram), and a stock bottle of a 40 percent solution of formaldehyde or denatured alcohol; then, before skinning a specimen, one can, with a pair of forceps and a little care and patience, and at the expense of very little time, pick off the parasites from the bird's feathers, and save them in a phial of preservative. The addition of a label, on which should be written the date, locality, and host, makes complete a collected side-issue which will be welcomed by an entomologist, and which may develop large value both in entomology and ornithology. If any one ask of what value are such parasites an answer can be found in articles by Kellogg (Auk, vol. 16, 1899, p. 232) and by Ferris (Journ. Mammalogy, vol. 3, 1922, p. 16).

The writer makes the collection of parasites his duty when handling a "flesh" specimen. As an example of the value of any one's efforts along such lines, he may be permitted to say that one species of avian dermal parasite collected by him had never been collected before in the western hemisphere, and also that he was able to help establish the fact that dermal parasites from Bohemian Waxwings taken in Colorado are similar to those taken from Old World Bohemian Waxwings. All dermal parasites coming from a single specimen should be kept together in one container, and due care should be taken to prevent transference of parasites from one specimen to another by avoiding promiscuous packing together of freshly collected different species. Other parasites frequently are found in a bird's digestive tract. These, too, should be collected, properly preserved and labeled, and sent to a helminthologist. Such specimens are always welcome. There is much room for research along these lines. An investigation of such parasites may disclose interesting and even important relations between birds and associated forms of life; for example, as between the intestinal parasites of fish-eating birds, and those of the fish of their habitat waters (Butler, E. P., Studies in the Enteroparasites of Birds and Fishes of Douglas Lake, Cheboygan County, Mich., 1921 [Thesis, Smith College]; Chandler, Journ. Amer. Med. Ass., March 4, 1922, p. 636). The study of the intestinal parasites of man is by no means complete; it possibly might

be made much more so by a systematic and painstaking collection and study of bird enteroparasites.

One explanation of the differing lengths of incubation among birds is that the incubation length is correlated with the bird's size, which means in the last analysis, its weight. One writer (Bergtold, Incubation Periods of Birds, 1917) who studied this question was able to find recorded in the ornithological literature at his command, the weights of only (approximately) ninety-three species, which, together with sixty-seven others secured by his own personal efforts, made a total which is less than one and one-half percent of all the known avian species. Is it not ridiculous, not to say inexcusably wasteful, in the face of this dearth of data, that any one should neglect to weigh a bird

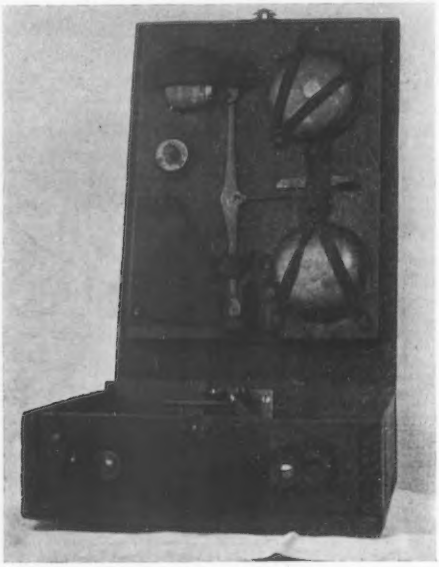

Fig. 31. FIELD SCALES, FOR WEIGHING BIRDS, HERE SHOWN PACKED IN SPECIAL BOX FOR CARRYING.

when it comes to the skinning table? It takes but a little time to weigh an ordinary bird; a well equipped collector or preparator should have at his command a set of small scales, both in his work shop and in his field kit. A compact and light set of scales for the field can be made very easily out of a set of moderate sized druggist's beam balances; the writer has made such a set and carries it with him on all of his collecting trips, and on excursions when no birds are to be collected, but when eggs may be found, and weighed.

This set of scales was made by the writer, and designed to combine minimum weight and size, and maximum efficiency. With it the writer has weighed birds as large as a crow. When closed it is a compact box, ten inches high, seven inches broad, and two and one-half inches thick, its total weight is two

and one-quarter pounds. A druggist's beam balance was used in this portable combination; it will be seen from the accompanying illustration (fig. 31) that the pans, beam, weights and other parts are attached to the inner surface of one side of the box in such a manner as to be easily taken off. The assembled scales are set up on the beam post which is fastened to the center block, to which are also hinged each side of the box. The two box sides fall down onto the supporting surface (table, for instance), leaving the center block and beam post in place.

Such a combination can be used in the workshop as well as in the field, and with it much valuable information can be accumulated which probably is usually wasted. The age, sex, seasonal, and geographic variations in avian weights form a subject as yet almost untouched by the ornithologist; at least it so seems to the writer, who believes that it is not a routine act with most collectors and preparators to determine and record the weight of a freshly killed bird. The paucity of records of bird weights in literature seems to justify this belief.

There is relatively little known concerning the body temperature of birds. That there is a more or less close relation between the temperature of a bird and the length of its incubation period seems indisputable to the writer. The exact delimitation of the relations between these two phenomena awaits solution, at least until a large amount of data concerning avian body temperatures shall have been gathered under known, approved, and carefully recorded conditions, and then studied and analysed hand in hand with the equally carefully determined incubation period length of the corresponding bird.

There are thousands and thousands of birds' eggs preserved in our museums and elsewhere, and, along a few restricted lines, a study of them has been distinctly productive of advances in ornithology. It is highly probable that the known weights of the eggs of different avian species does not include more than one percent of the world's birds. For years ornithologists have said that the differing lengths of incubation among birds is dependent on the differing sizes of their eggs. In the last analysis, size of eggs, in this instance, means weight of eggs. How valuable can an explanation be which is based on less than one percent of the possible data?

From the viewpoint outlined by these remarks, it would probably be exceedingly discouraging if one were to know what the percentage of collected and preserved bird "stomachs" is to the total number of birds annually collected for other purposes. It seems quite unnecessary to call attention anew to the vast economic possibilities opened up by a scientific study of the food of birds, a study which is best promoted by investigating the "stomach" contents of birds. The Biological Survey at Washington welcomes all such material and disseminates for the benefit of all concerned the knowledge gained from it.

The list of different possibilities for study in a freshly killed bird has only been touched upon in the above remarks; many more could be enumerated, all of surpassing interest, and many with a chance of opening up large fields of important discovery, and original worth. The writer has felt for years that such a waste of opportunity and material should not continue; not only because it is utterly unscientific, unproductive, and inefficient, but also because many such opportunities, and much of such material may, in the fu-

ture, never again be at hand. The material is as much lost as is the dodo. Is it not time for many of us collectors and preparators to about face, and be scientific and efficient in action as well as in aspiration and reputation?

Denver, Colorado, March 4, 1922.

NOTES ON THE AMERICAN PINE GROSBEAKS

WITH THE DESCRIPTION OF A NEW SUBSPECIES

By ALLAN BROOKS

SOME ten years ago I received from Mr. C. deB. Green several pine grosbeaks that he had taken near Masset, Queen Charlotte Islands. These were quite unlike any of the North American pine grosbeaks I had seen and I identified them as *Pinicola enucleator flammula* Homeyer. When in Washington in November, 1920, I had the opportunity of examining the series of that subspecies from the type locality in the national collection, and it was obvious that the Queen Charlotte bird was a distinct subspecies, quite the best differentiated of all the American forms.

I have refrained from describing it for a number of reasons, chiefly in the hopes of increasing my series, which had been reduced to three skins. Over a dozen have passed through my hands, however, besides a number of others seen in life which I did not shoot, as Mr. Green wished to take their eggs. As there does not seem any immediate probability of acquiring further material I shall describe the subspecies herewith.

Pinicola enucleator carlottae, new subspecies

Queen Charlotte Pine Grosbeak

Type.—Male, red adult, no number, collection of Allan Brooks; Masset, Graham Island, Queen Charlotte Islands, British Columbia; June 2, 1920; Allan Brooks, collector.

Subspecific characters.—Smallest and darkest of all the American subspecies; tail much shorter than in the other American races. Red of male deeper and more scarlet (less of a carmine); yellow of females and old males darker and suffusing the entire plumage more or less, except the center of belly, lower tail coverts, and under wings and tail.

Description.—Red male (type): Distribution of colors as in red males of this genus, the red nearest the "nopal red"; the interscapular feathers with dark brown centers; scapulars "dark mouse gray"; belly and flanks "mouse gray"; wings and tail "fuscous black", outer edges of all the feathers, except tertials, "mars orange"; white markings of wings much restricted, the two bars on coverts tinged with rose, the edgings to tertials very narrow and grayish; lower tail coverts edged with whitish, their centers "deep mouse gray".

Iris brown, upper mandible black, lower dark brownish gray; feet brownish black. Measurements (average of two males): Length (skins) 193 millimeters, wing 109, tail 79.5, culmen 14.5, depth of bill at base 10.5, width of mandible at base 9.3, tarsus 20.5.

Female: Coloration as in females of the genus, but the yellow areas more extensive and the color much darker. Yellow of head nearest to "orange-citrine" but more red, of rump and upper tail coverts, brighter and more yellow; the breast, flanks, and interscapulars overlaid with a strong wash of "orange-citrine", and the feathers of wings and tail, except tertials, edged with same; tertials edged with ash gray; chin buffy;

ventral region "mouse gray", lower tail coverts the same edged with paler. White bars on wings very restricted, the centers of all the wing and tail feathers "fuscous black". Wing 108, tail 82, culmen 13.5, depth of bill at base 10.5, width of mandible 9, tarsus 20.5. [Colors in quotation marks from Ridgway's *Color Standards and Color Nomenclature*, 1912.]

It will be seen that while the bill in *carlottae* is proportionately large and strongly hooked, it is not nearly up to the dimensions of that of *flammula* as given by Ridgway. Probably the Queen Charlotte bird more closely approaches true *enucleator* from western Europe than any of the American subspecies.

In conjunction with the foregoing descriptions I have carefully gone over my entire series of pine grosbeaks, some thirty in all not counting these very distinct Queen Charlotte birds. The result makes me hope that someone with plenty of material at his disposal will review the group.

All the specimens that I have sent back to Washington have been identified by Dr. Oberholser as *montana*. These include winter specimens from the interior of British Columbia and one breeding bird from the coastal slope of the Cascades (international boundary). The former I took for *alascensis*; they seemed to agree with specimens from the Cariboo district (central British Columbia), identified by the late William Brewster as such.

This winter (1921-'22) we have had in the southern interior of British Columbia an invasion of very large, purely colored birds, the grays as pale as, or paler than, in eastern Canadian *leucura*, the rose-pink of the males sometimes covering the greater portion of the lower surface. These must be *alascensis*, as the bill proportions agree with Ridgway's description. But Ridgway, the describer of both *alascensis* and *montana*, indicates by the measurements he gives that the latter is the larger of the two, not only in the bill but in average dimensions. The breeding birds that we get in southern British Columbia are very much smaller than these winter birds, nor is the bill longer or larger in any way.

A small series of winter taken birds from Edmonton, Alberta, agree exactly with these large winter birds from British Columbia. Neither series is very different from eastern (Ontario) birds. The westerners are a little larger, perhaps, but the Ontario birds seem to suggest the inclusion of two different types. One lot is larger with heavier and more strongly hooked bill, and the red males are more purplish and with dark centers to the feathers of breast. The other eastern form, the commoner, is smaller, more pink, the colors more uniform, and the bill smaller and less hooked.

The red males of *Pinicola* I regard as birds of the year, and I doubt if the red plumage is held for more than one year. The succeeding plumage may be the reddish one figured as the immature male in Bird-Lore (vol. 14, 1912, no. 6). This plumage, where the yellows on head and rump are replaced by dull red, is common to both sexes and is only occasionally seen. A still rarer type of plumage in the male is where the rose-red is replaced by salmon-pink, probably a freak like the yellow types of *Carpodacus*.

The proportion of red males in *Pinicola* is much smaller than in *Loxia* or *Carpodacus* and is probably not more than one in three of breeding birds. The proportion of red males in collections may be higher, but this is obviously due to the fact that collectors will take a red male in preference to a gray bird in nearly all cases. One will often see a flock of a dozen or more birds without

a single red male among them; this rarely, if ever, occurs with *Loxia*, or *Carpodacus*. Of five breeding pairs seen in the season of 1920, only one was a red male. In the others the sexes were indistinguishable.

Okanagan Landing, British Columbia, March 3, 1922.

THE ALEUTIAN ROSY FINCH

By G. DALLAS HANNA*

WITH ONE PHOTO

THE RANGE of the Aleutian Rosy Finch (*Leucosticte griseonucha*) is rather extensive, since it has been found from Kodiak Island west through the Aleutian Islands as far as the Commander group, 1000 miles away. It is also found on the Pribilof and the Mathew groups, 200 and 400 miles, respectively, farther north. The species has always been extremely rare wherever I have met with it, except on the Pribilof, or Fur Seal, Islands. When I landed there in 1913 it was nesting in the village and on the cliffs in considerable numbers.

The beautiful song of the male was new to me then, and it seemed the most attractive feature of the desolate place. It is excelled by the song of no other species on these islands, and is rivalled there only by that of the Alaska Longspur and of the Pribilof Snow Bunting.

The annual cycle of the Aleutian Rosy Finch possesses considerable interest because of several unique features. A convenient starting point in an account of it would be August 31, when the last birds have hatched out and practically all have flown. The autumnal molt then begins, and with this the beautiful song is replaced by a rather commonplace chirp of ordinary finch character.

These birds gather in loose flocks, even in the height of the breeding season; in the fall the flocks become larger and more compact. It is no uncommon sight in fall or winter to find fifty birds feeding on a single patch of "poochkie" (*Heraculum*) heads, and during periods of especial abundance I have seen as many as a hundred at a time. Although the seeds of many plants are eaten, those of the "wild parsnip" compose by far the greater part their diet. These seeds are well filled with oil, being similar in that respect to sunflower seeds, and must provide much fuel, to enable the birds to withstand the vigorous Arctic gales so common in that latitude.

There is very little change in the coloration of the adults with the assumption of the winter plumage, and the young of the year are indistinguishable from the older birds by late fall. One of the most striking results of the change of season from summer to winter is in the color of the mandibles. In summer these are dead black, but winter turns them to a brilliant lemon yel-

*Contribution from the California Academy of Sciences.

low, the tips only retaining the dark color. No shedding of the horny substance of the mandible takes place; it is merely a matter of coloration; and for what reason?

I have been led to believe that there is an irregular migration—or perhaps it might properly be called a flight—of Pribilof Rosy Finches to the Aleutian Islands in winter. There appeared to be a fluctuation in the numbers of the birds which could be explained in no other manner. They do not all leave the Pribilofs at any season, regardless of severity of the weather, and weather conditions could not be correlated in any way with the variation in their abundance. While it is possible that these variations might be such in appearance only, due to flight to portions of the resident island rarely visited by man, careful study of the subject through several winters did not satisfy me that this was the case.

These birds continued to be abundant from 1913 up to the winter of 1916-17, when a terrible catastrophe befell them. The Pribilofs that winter were visited by a number of gyrfalcons, and these wreaked havoc among the resident land birds. Dr. Harold Heath has outlined the case of the Alaska Wren, as regards fluctuations in numbers (*Condor*, vol. 22, 1920, p. 49). The Rosy Finches, as these leucostictes are locally known, fared little better. The first gyrfalcons killed were examined, and in their stomachs was found unmistakable evidence of slaughter—the rosy feathers of their victims. Their prey was so easily captured on the barren Pribilofs that the falcons became extraordinarily fat. So oily were they that the preparation of specimens was exceedingly difficult. The offering to the natives of a bounty of one dollar for each capture was instrumental in securing thirteen of them, a greater number than the total which had been seen on the Pribilofs since observations commenced.

During the winter season the rosy finches remain in the immediate vicinity of the cliffs. This made them easy of capture by the gyrfalcons, which seemed to be especially at home in such surroundings. When the summer of 1917 came, scarcely a finch could be found. Only one pair nested on St. Paul, and one pair on Otter Island. A few more were left on St. George, but the species would have been classed as exceedingly rare even there. The total number was not over twenty-five, which is an optimistic estimate. How fortunate it is that the seal islands are normally free from such a scourge as these falcons proved to be!

Through succeeding years the rosy finches were watched with great anxiety, and it was gratifying to see their numbers gradually increasing. By 1920 there were, perhaps, a dozen pairs on St. Paul Island and a hundred on St. George, but even the latter was still underpopulated.

This circumstance serves as a fair illustration of the precarious existence led by island birds in general. In the short space of two or three months a species may be almost entirely annihilated by the sudden appearance of an enemy that is normally absent. The rarity of the Aleutian Rosy Finch elsewhere in its range is commonly believed to be due to the work of birds of prey there found. Singular to relate no hawk, eagle, or owl lives on the Pribilofs except as a straggler.

Two indicators of spring mark a point in the Aleut's calendar. One of these is the coming of the Least Auklets (Choochkies) with clock-like regular-

ity on April 15 of each year. The other is the first song of the Aleutian Rosy Finch, at about the same time. Catching the spirit of the birds the lethargic shackles of winter are shaken off by the human inhabitants of these islands, and the wheels of industry start. The awakening of spring brings much activity with it.

At this time the birds soon seek out nesting sites, and building begins in May. The earliest full set of eggs of the Rosy Finch that is recorded was taken in May. I have never been able to convince myself that the male bird rendered any assistance at all in building the nest, incubating the eggs, or rearing the young. However, the sexes are so nearly alike that a mistake as to their identity could easily be made by an observer of their actions around the nest, and the subject needs further study.

Fig. 32. Typical nest and nesting site of Aleutian Rosy Finch on St. George Island, Alaska.

The males spend the greater part of the summer in fighting each other. In fact the moral code of this species seems to be drawn up somewhat upon Turkish lines, only reversed. Often a female may be seen pursued by half a dozen suitors. When the female is off her nest, her mate (or, at least, some mate) is constantly close beside her, and, if rosy finches are abundant, many is the battle he has to fight. Or, as she feeds along some narrow ledge, two contestants for her favors may now and then come tumbling down to the beach line, flapping and pecking at each other, their places as attendants being soon taken by a third party.

While nests have been found in old buildings, the favorite site for nest building is in some crack or crevice of the precipitous cliffs on the shores of

the Pribilofs. Some of these rise to a height of a thousand feet and form incomparable bird rookeries. Although there is almost no zoning of the eleven species of sea birds nesting there, the lowermost nests are, in almost every case, those of the kittiwakes. In some instances the fulmars, murres and cormorants are equally low, but not often. The lowermost of these do not usually approach the beach line closer than twenty-five feet, and it is in the space from there down that the Rosy Finches most often build. On rare occasions the nests of the latter may be reached by hand, but the birds are seldom so injudicious as to run such risks. The nest is neatly constructed of the dry grasses most accessible, and the lining is of similar material, but softer and finer than that used for the body of the nest. Seldom are roots or feathers used in nest construction.

The length of time a female remains off her nest depends, of course, upon the state of incubation of the eggs; when she returns to it, the male settles on some favorite nearby rock and pours forth his beautiful song, repeating it time and time again. The serenity of the scene is interrupted only by some wandering finch which must be chased away most vigorously.

The normal set consists of five eggs, but four and six are not infrequent. While the color is usually pure, immaculate white, in some cases there are faint reddish or yellowish brown spots or, more often, specks, many of which are almost microscopic in size.

Two broods of young are raised each year under normal conditions, and hence this species increases rapidly in numbers if free from enemies. The period of incubation is not definitely known, but the second sets are laid by August 1 in the majority of cases. It is believed that the same nest is used for both sets, or at least the same location. Sometimes it appears that a portion of the old nest is torn out and then reconstructed. The young of summer plumage are uniform grayish brown, and show no trace of the brilliant rose and pink colors of adults in breeding plumage.

The Aleutian Rosy Finch has endeared itself to all those who have come to know it, and being one of the most beautiful of the sparrows it is a misfortune that it is so isolated in habitat.

San Francisco, March 23, 1922.

EGGS OF THE ALEUTIAN ROSY FINCH

By JOSEPH MAILLIARD*

WITH ONE PHOTO

IN CONNECTION with the interesting article upon the Aleutian Rosy Finch (*Leucosticte griseonucha*) by Dr. G. Dallas Hanna, just preceding, I submit the following notes upon a series of the eggs of this species.

The size, shape, and the tint of the white of these eggs vary considerably, while, on careful examination, a good many more of them are marked by spots

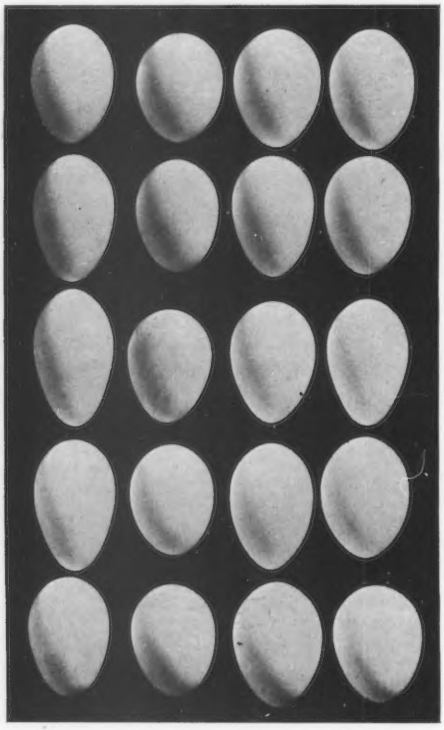

Fig. 33. FOUR SETS, FIVE EGGS EACH, ARRANGED VERTICALLY, OF ALEUTIAN ROSY FINCH, SHOWING VARIATION IN SIZE AND SHAPE.

or specks than is ordinarily supposed. For the most part these spots are of a yellowish or slightly reddish brown. Many are mere specks, some of which are so slight and faintly colored as to be barely perceptible without the aid of a magnifying glass, while other eggs show spots that are minute but strongly

*Contribution No. 137 from the California Academy of Sciences.

colored. Some of the sets have one or two eggs with these small specks, and yet have one or two others that are very distinctly marked, for this species. One set has distinct spots of a delicate rosy pink tinge, another set has some of the eggs splotched rather than finely spotted or speckled, and these splotches are reddish in color.

Of forty-four sets of five eggs each, together with one of six eggs, fifteen of the sets were unmarked, nine contained one spotted egg, none had two eggs spotted, eight had three eggs, seven had four eggs, eight all five, while the six-egg set had all but one spotted. Some of these markings look like an incidental stain, as from wet grass or a fly speck, but the magnifying glass shows them to be natural coloration. The greatest number of spots or specks is usually at the larger end of the egg, and in some cases these are arranged somewhat as a ring. In other cases a spot or two on any part of an egg may be the only marking.

Both size and shape of the eggs of this species are very variable. The longest egg measured, in millimeters, 28.3 and the shortest 22.3, with an average of 24.6 for 115 eggs measured; while the width showed extremes of 18.8 and 15.9, with an average of 17.5. There is no particular correlation between the two diameters, however. For example, the longest egg measures 28.3×17.0, while the third shortest in the lot is 22.8×18.2, the one long and slim and the other short and fat.

The measurements of the sets used in figure 33, from left to right are as follows:

(C. A. S. No. 1743) 28.3×17.0, 27.2×17.2, 26.4×17.3, 24.8×17.6, 24.1×17.2.
(C. A. S. No. 1677) 23.5×17.5, 23.0×18.4, 22.8×17.7, 22.9×17.7, 23.4×17.8.
(C. A. S. No. 3660) 26.1×17.4, 25.4×18.8, 25.0×17.9, 24.6×18.3, 25.1×17.3.
(C. A. S. No. 3539) 26.3×17.0, 24.9×18.5, 24.5×18.2, 23.2×18.5, 25.4×18.0.
Average length of the 115 eggs measured is 24.6, and average width is 17.7.
Set nearest to average of the 23 that were measured:
(C. A. S. No. 3543) 24.8×18.2, 24.3×17.7, 24.5×17.9, 24.8×17.7, 23.8×17.5.

The tint of the white of these blown eggs varies somewhat, as before remarked, but not through any great range. Newly laid eggs seem to vary from bluish white, through pure white to slight cream color, while those that have been more or less incubated are apt to become yet a little darker cream color. Possibly some sets have been exposed to an occasional wetting, when not well protected, or the parent may have come on the nest with some of its feathers dampened by rain, but on the whole there is great freedom from stain.

San Francisco, March 23, 1922.

FROM FIELD AND STUDY

Yellow-headed Blackbird in Company with Brewer Blackbirds.—In volume XXII of THE CONDOR, page 205, Mr. Frank N. Bassett records the unusual occurrence of a Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) flocking with Brewer Blackbirds. Another instance of this was noted at Penticton, British Columbia, on October 19, 1921, when a single male was seen in the midst of a flock of about fifty Brewer Blackbirds. This was of interest to me not only for the unusual association of the two species, but on account of the scarcity of the Yellow-headed Blackbird in that locality and the late date on which it was seen. Another point of interest lay in the uncon-

ventional surroundings. One associates this species with tule marshes, or grain fields, and this bird seemed oddly out of place picking up refuse grain on a suburban street.—J. A. MUNRO, *Okanagan Landing, British Columbia, November 26, 1921.*

The Occurrence of the Desert Horned Lark in Southern California.—A careful analysis of the mixed flocks of horned larks that range the deserts and lowlands of California in such abundance during the winter has brought to light certain interesting facts and record stations for *Otocoris alpestris leucolaema.* The winter range of this form is given in both the third edition of the A. O. U. *Check-list,* and also by Oberholser in his review of the genus (Proc. U. S. Nat. Mus., vol. 24, 1902, p. 821) as "south to . . . southeastern California". But the most southern record station actually given by the latter authority is Keeler, Inyo County, California, in a section perhaps better referred to as east-central California, because of the transverse ranges that divide the state south of that point.

The specimens listed below from the A. B. Howell and D. R. Dickey collections indicate a far more general distribution of the species throughout the southern portion of the state, in fall, winter, and spring, than had heretofore been suspected. Only the sea-coast proper seems to escape their invasion. The Fort Yuma birds have been previously referred to (Condor, XVII, 1915, p. 233), but we trust we may be pardoned for repeating the record here with a view to incorporating all available pertinent data. A list of record stations follows.

Inyo County: Deep Spring Valley, 2 specimens, Sept. 20, and Sept. 26, 1921; Keeler, 1 specimen, Oct. 21, 1921.

Kern County: Buena Vista Lake, 1 specimen, Sept. 16, 1921.

San Bernardino County: Victorville, 4 specimens, Sept. 25, 1921; Newberry Spring, 1 specimen*, Dec. 8, 1917.

Los Angeles County: Palmdale, several specimens, Jan. 5, 1921.

Riverside County: 10 miles south of Ontario, several specimens, Dec. 3, 1919, and Dec. 11, 1920; Thermal, 1 specimen*, Jan. 27, 1918.

Imperial County: 10 miles west of Kane Spring, 1 specimen, Oct. 15, 1921; vicinity of Fort Yuma, 3 specimens*, Jan. 28, 1913, and Jan. 29, 1921; sand dunes east of Holtville, 1 specimen, March 21, 1916.

We are indebted to Mr. A. B. Howell for kindly allowing us to put on record the birds in his collection, which are starred in the above list, and to Dr. H. C. Oberholser for verifying the determinations of several of the more doubtful birds.—D. R. DICKEY AND A. J. VAN ROSSEM, *Pasadena, California, January 13, 1922.*

What Color are the Feet of the Western Gull?—In the last volume (part 8) of Ridgway's *Birds of North and Middle America,* the color of the feet of the Western Gull is given as yellow in life. In Dr. Dwight's recent description (Proc. Biol. Soc. Wash., vol. 32, 1919, pp. 11-13) of the southern form of the Western Gull (*Larus occidentalis livens*) the color of the feet is given as "lemon yellow". This Dr. Dwight now regards as an error on the part of the collector of the type specimen. In the fourth edition of Ridgway's *Manual of North American Birds* the color of the feet is given as "flesh colored" (under description of *Larus fuscus*). This, I believe, is the invariable color in the adult.

What I want to know is: 1. Has any one seen a Western Gull with yellow feet? 2. If not, where did the mistake (if it is a mistake) originate? When I first travelled south along the Pacific Coast in 1911 I was under the impression that this gull had yellow feet, and was considerably surprised to find that among the hundreds of adults that I examined at close quarters in life nothing but flesh colored feet were in evidence. The full description of the soft parts as given by Ridgway in the *Birds of North and Middle America* (part 8, p. 610) is as follows: "Bill deep yellow, the mandible with a subterminal lateral spot of red; iris brown; bare orbital ring vermilion red; legs and feet yellow (in life)." Three spring adults collected by myself vary from this in every item except the color of the bill. They all agree in having the iris pale yellow or straw color, freckled with grayish; eyelid deep yellow, no trace of red; feet flesh colored; and claws dark brown. Can California observers supply data to settle this question?

This gull also seems to be unfortunate in the records of its occurrence, distribution, and nesting. The latest A. O. U. *Check-list* gives the correct distribution with the exception of the Colorado record, now known to be an error; but Ridgway has since then perpetuated the impossible record, first made by Fannin (*Check List of British Columbia Birds*, 1891, p. 4) of the breeding of *Larus occidentalis* in the Similkameen Valley, British Columbia—a locality which no gull would nest in, a narrow rocky gash in the mountains.

All Fannin's "*occidentalis*", so labeled by him on the bases of the stands of his mounted birds, were simply *Larus argentatus*. This, in all the harbors of British Columbia, being the next commonest gull to *Larus glaucescens*, he assumed it was the Western Gull—the common gull of the west. Many other observers seem to have made a similar mistake. They took the presence of the Western Gull for granted, a sort of ground pattern on which to work in the records of the other species. These last they identified; the "Western Gull" was assumed. In all my coastal voyages on various craft extending back for about thirty-five years I have never seen the Western Gull north of Cape Flattery, not even among the flocks following the steamers on Puget Sound—and I have always been keenly on the lookout for it. Once you round Cape Flattery, it at once becomes the most conspicuous gull.

There are only three records for British Columbia, a molting adult taken by Spreadborough on the south end of Vancouver Island, and two taken at Comox on the eastern shore of that island. The latter are both adults, one being of the light mantled type and the other the dark type so common in California, "*Larus occidentalis livens*" of Dwight. The first of these gave me an idea as to how the "yellow" feet of the Western Gull may have originated. When I shot it I noted that the feet were rosy flesh color. As it lay on the thwart of the boat in front of me, one foot was elevated, the other hung down. As the blood drained from the tissues the color of the elevated foot turned from rosy flesh to yellowish white, not "yellow" by any means, but what might possibly have passed for cream color of a very pale shade, the other foot remaining as in life.

The correct record of the colors of all soft parts is of the primest importance in the Laridae, where so many closely allied species have feet of very different colors. The two black-backed gulls of western Europe, *Larus marinus* and *L. fuscus*, can readily be told apart in life by the feet alone, the former having them flesh colored and the latter yellow. The many false records for the Kittiwake on the Pacific Coast would never have been made if the color of the feet had been looked up.—ALLAN BROOKS, *Okanagan Landing, B. C., March 3, 1922.*

Waterfowl Caught in Fish Nets.—On February 28, 1922, while driving along the shores of Tillamook Bay, Oregon, with Deputy Game Warden Geo. Russell, an adult male White-winged Scoter (*Oidemia deglandi*) was seen struggling in a salmon net in which it had become entangled. The net was set in about five feet of water. On being questioned the fisherman told me that during the past fall he had caught several each of loons, scoters and wild ducks in his salmon nets.—STANLEY G. JEWETT, *Portland, Oregon, March 10, 1922.*

Further Record of Savannah Sparrow in California*.—Mr. C. I. Clay, in THE CONDOR, vol. 19, 1917, p. 68, published a record of the occurrence in Humboldt County, of the Savannah Sparrow (*Passerculus sandwichensis savanna*). This bird was identified by Dr. Joseph Grinnell of the Museum of Vertebrate Zoology, Berkeley, California, and constituted the first published record for the state.

During the field work of 1921 two sparrows were taken at Kneeland Prairie, Humboldt County, California, by Mr. Chester C. Lamb and myself, the identity of which I did not like to be too positive about without further professional opinion. These were submitted to the Museum of Vertebrate Zoology, and pronounced by Mr. H. S. Swarth as being typical *Passerculus sandwichensis savanna* of southeastern Alaska. These two specimens were taken on September 29, 1921, in company with some of the Dwarf Marsh Sparrow (*Passerculus sandwichensis brooksi* Bishop).

Two specimens of this genus were taken by Mr. C. Littlejohn and myself at Re-

*Contribution No. 135 from the California Academy of Sciences.

qua, May 4 and 5, 1921, which I have also placed with *savanna*. These two birds conform to this race in measurements, and in practically every way, except that the dark markings on the throat and breast are rather lighter than in the specimens I have had for comparison. These Requa birds were taken on the open hillside back of the town and were the only individuals of this genus we noted in that particular spot. The finding of these four examples of the race seems to indicate that the Savannah Sparrow is a more common winter migrant to the northwest coast of California than was heretofore supposed.—JOSEPH MAILLIARD, *San Francisco, California, February 8, 1922.*

Crossbills Eating Aphis.—Mr. Storer's note in the last May CONDOR (vol. 23, 1921, p. 98) regarding Crossbills eating aphis, recalls the fact that American Crossbills taken in Jasper Park, Alberta, the summer of 1917, had their faces and throats covered with bluish white bloom from woolly aphis apparently gleaned in the spruces. Last summer I had opportunity to watch a captive Crossbill in Manitoba. It was fed largely at the time on leaf galls from the poplars surrounding the house. The bird would open its bill and drive both points deeply into the soft mass of the gall until the mandibles were practically closed and crossed. Then, with a slight twist of the head, the gall would be split wide open. The hollow interior was seen to be filled with what appeared to be a sort of woolly aphis, which was rapidly cleaned out with the bird's tongue. The certainty, ease and rapidity with which the operation was performed indicated that the apparently awkwardly crossed bill was a most efficient implement for the work.—P. A. TAVERNER, *Victoria Memorial Museum, Ottawa, Canada, March 2, 1922.*

Bird Records from California, Arizona, and Guadalupe Island.—

Phalacrocorax auritus albociliatus. Farallon Cormorant. One specimen taken on a pond near Fort Lowell, Arizona, April 26, 1905.

Rallus obsoletus. California Clapper Rail. Several seen along the rocky shore at Pacific Grove, California, in October, 1916.

Pisobia maculata. Pectoral Sandpiper. A number observed near National City, California, the latter part of October, 1917.

Lophodytes cucullatus. Hooded Merganser. A male and two females observed on Smith River, near Adams, California, October 10, 1915.

Oreortyx picta picta. Mountain Quail. A small flock flushed near Adams, California, in October, 1915.

Melopelia asiatica. White-winged Dove. Three flushed from a camp site on the Pima Indian reservation, twelve miles south of Tucson, Arizona, March 20, 1918.

Micropallas whitneyi. Elf Owl. Two of these birds frequented an isolated cottonwood tree at Bard, Imperial County, California, in April, 1915, but on account of the density of the foliage I was unable to shoot them.

Asyndesmus lewisi. Lewis Woodpecker. Several noticed in large cottonwood trees at Bard, California, on April 30, 1915.

Colaptes auratus luteus. Northern Flicker. I have a male specimen taken at Eldridge, California, January 4, 1913.

Aphelocoma californica californica. California Jay. Not uncommon near Adams (seventeen miles east of Crescent City), California, during October and November, 1915.

Molothrus ater obscurus. Dwarf Cowbird. A female taken near Long Beach, California, June 6, 1913.

Loxia curvirostra stricklandi. Mexican Crosbill. A female that was taken in the Chiricahua Mountains, Arizona, would have commenced to incubate a set of eggs about August 28.

Astragalinus tristis pallidus. Pale Goldfinch. A few seen near Fort Lowell, Arizona, November 20, 1905, and one secured in Sabina Canyon, Catalina Mountains, December 10, 1920.

Astragalinus lawrencei. Lawrence Goldfinch. Specimens taken or seen at Fort Lowell, Arizona, in March, 1905; at Paradise, Arizona, in November, 1918; at Willcox, Arizona, March 17, 1919; at Santa Cruz, California, two pairs, on May 17, 1917.

Zonotrichia albicollis. White-throated Sparrow. I have a specimen I secured near the corral on the shore of Guadalupe Island, Mexico, on October 10, 1913; and also a male taken at Adams, California, November 4, 1915.

Spizella monticola ochracea. Western Tree Sparrow. A fine male specimen taken at Pacific Grove, California, October 13, 1916, is in my possession.

Piranga ludoviciana. Western Tanager. A male of the year which was feeding on madrone berries and with its plumage badly smeared with crude oil, was secured at Boulder Creek, California, October 20, 1916.

Piranga rubra rubra. Summer Tanager. I have a female which I secured in the cypress grove on the summit of Guadalupe Island, Mexico, on October 12, 1913.

Guiraca caerulea lazula. Western Blue Grosbeak. Two males observed feeding on wild oats near Mosquito Harbor, San Clemente Island, April 21, 1914.

Dendroica townsendi. Townsend Warbler. A male secured near the same place on April 18, 1914.

Dendroica coronata. Myrtle Warbler. A number observed near Adams, California, in November, 1915.

Vermivora celata sordida. Dusky Warbler. Seen in the willows on the beach at Monterey, California, in October, and at Pacific Grove, in November, 1916.

Thryomanes bewicki drymoecus. San Joaquin Wren. One specimen secured at Adams, California, November 1, 1915.

Thryomanes bewicki marinensis. Nicasio Wren. One specimen secured seven miles east of Crescent City, California, November 18, 1915.

Riparia riparia. Bank Swallow. A considerable colony of some kind of swallow, certainly not *Petrochelidon*, and apparently Bank Swallows, were present about an outlying rock at Alamos Landing, Santa Cruz Island, California, during June, 1914.

Penthestes rufescens rufescens. Chestnut-backed Chickadee. A family found in a burnt stub, eleven miles from McCloud, California, near the river of that name, on August 2, 1915.—H. H. KIMBALL, *Seal Beach, California, February 20, 1922.*

Townsend Solitaire on the Oregon Coast.—On February 28, 1922, a single Townsend Solitaire (*Myadestes townsendi*) was seen along the roadside near the mouth of the Miami River, Tillamook County, Oregon. This is the first record of the Solitaire in this county, and so far as I can learn the first west of the coast mountains in northwestern Oregon. It breeds commonly in the Transition zone in the Blue Mountains of eastern Oregon, and sparingly west to the west slope of the Cascades in central and northern Oregon, migrating into the Willamette Valley sparingly during the winter.—STANLEY G. JEWETT, *Portland, Oregon, March 10, 1922.*

A Winter Record of the Texas Nighthawk in California.—At first thought, one would hardly expect a goatsucker to tolerate more than a touch of frost, but, indeed, there is no apparent reason why a bird of this sort should not be able to gain a living wherever and whenever a Vermilion Flycatcher can. However that may be, shortly after sundown on January 23, 1922, three miles northwest of Calexico, Imperial County, California, a Texas Nighthawk (*Chordeiles acutipennis texensis*) flew a few yards above me and hawked back and forth several times above a field of lettuce. This could hardly have been a migrating bird, and its presence was all the more unsual for the fact that the given date was in the midst of the coldest weather experienced by southern California during nine years, with a third of an inch of ice at night. It is a question whether frosts are not just as frequent and as severe in the Imperial Valley as they are throughout the general area known as the "thermal belt" of the San Diegan faunal division. However, the mean winter temperature is considerably higher in the former section, due to much warmer days, and as there are probably few birds found north of the Mexican border which cannot put up with an occasional frosty night, one would expect to find more of the "tender" species lingering through the winter in the Valley than in the relatively cooler districts nearer the coast.

In the same locality on January 22, 1922, I flushed two flickers from a cottonwood by the roadside. One was the usual *Colaptes cafer collaris*, but the other was a yellow-shafted bird, and appeared to be somewhat smaller. It was impossible to tell whether this individual was a *Colaptes chrysoides mearnsi*, or merely one of those puzzlers which are variously placed as *Colaptes auratus borealis*, or as chromatic variants of *collaris*. During the breeding season, Mearns Gilded Flicker is seldom found far from the sahuaros, but in winter it scattters more widely, and for some years I have

rather expected to hear of its presence in the Imperial Valley, in common with a number of other birds which are extending their ranges over the irrigated delta of the Colorado River. Taken in this connection only, this note may prove of interest.—A. BRAZIER HOWELL, *Pasadena, California, February 8, 1922.*

Some Winter Birds of the Colorado Delta.—On January 22 and 23 of this year I was with a party hunting quail near Don Lorenzo in Lower California. We were from forty to fifty miles east of Calexico, and from twelve to sixteen miles south of the international line.

North of us we could see the sand hills that are still untamed if not unconquered, and beyond them the well-known mountain ranges of the desert. But we were not in a desert country at all—rather in a jungle. The true delta of the Colorado is overflow land, thickly covered with vegetation; ink-weed, rag-weed, and arrow-weed are the native names of the most common kinds. A few cotton-woods and many willows in the lower places, and the ever present mesquite patches, broke the monotony. The ground is not really level. Wind and water have combined to produce hills and depressions, and open places where sand was master were by no means rare. Still, in a general sense, we were on the edge of a flat scrubby country of several thousand square miles, covered solidly with a head-high growth that could be penetrated only with difficulty.

There was hardly a time when one or more of the Raptores were not in sight. When I woke the first morning a pair of Marsh Hawks were busily harrying the cotton-fields by the ranch house. Our old friend, the Western Red-tail, was conspicuously present, as were several other species of hawks and at least two species of owls besides the Burrowing Owl. Turkey Vultures were common. All of which speaks volumes for the abundance of the unseen rodent life in the brush.

The White-crowned Sparrow, in my judgment, was the most common bird, and Gambel Quail the next. Abert Towhees were seen everywhere, and the Mexican Ground Dove and the Northern Cactus Wren were very abundant, though both were outnumbered by the Western Mourning Dove. The Black Phoebe was as busy as anywhere around ponds and buildings. Ravens were plentiful, especially along the banks of the Bee River. I collected three Sparrow Hawks for the San Diego Museum.

Among other land birds observed were Shrike, Thrush, Bush-tit, Vermilion Flycatcher, Dwarf Cowbird (quite common), Road-runner, Phainopepla, Tree Swallow, and Sonora Red-wing.

On January 24 we drove back to Hecheira and then turned south. We found a slough within eight or ten miles on which we shot ducks, mostly Spoonbills. My son and I each killed one of a pair of Fulvous Tree Ducks, and were much surprised to find them so far north at this season. There was a heavy tule growth around the slough, which was the home of innumerable marsh wrens, and the Sora was more common than I have ever seen it elsewhere.

We drove on to Volcano Lake and spent one morning there. Ruddies and Spoonbills were the most common ducks. Avocets, too, were present in large numbers. I was interested in obtaining from Mr. W. G. Hendricks an authentic statement of the presence there of the Roseate Spoonbill. In the summer of 1920 a flock of about twenty were on the lake, and in the summer of 1921 four were observed. A flight of Lesser Snow Geese apparently takes place over this lake every winter.—GRIFFING BANCROFT, *San Diego, California, February 1, 1922.*

Water Ouzel Eating a Fish.—On January 1, 1922, I caught sight of a small, plump bird struggling with something on a snow bank across the river, a foot or so from the water's edge. The bird was recognized at once as an Ouzel (*Cinclus mexicanus unicolor*). It appeared to have a small fish in its beak, which it was shaking violently and beating in the snow. I went to the tent and got the field glasses and was able to determine that it really was a fish that the Ouzel was struggling with. The fish was about two inches long and very much alive. After beating and mauling the fish for a few moments the Ouzel would attempt to swallow it. At this juncture the fish would free itself and flop onto the snow, whereupon the Ouzel would seize it and the maltreatment would commence again. After tussling with the refractory fish for about five minutes the Ouzel with apparently tremendous effort managed to stuff the victim down. After the

final effort the Ouzel appeared stunned and dazed and too full to move. His inactivity, however, was very brief and he soon plunged into the turbulent river. His strange maneuvers with the fish might remind one of the antics of the Kingfisher when attempting to reduce his catch to an edible state.—CHAS. W. MICHAEL, *Yosemite, California, January 31, 1922.*

Turkey Vulture Wintering at Chico, Butte County, California.—On December 28, 1921, while riding through the Phelan Ranch near Chico, California, I saw a Turkey Vulture (*Cathartes aura septentrionalis*) circling overhead. On expressing my surprise at seeing the bird so far north at that time of year my companion, who is an old resident there, informed me that they wintered there "quite commonly". Later in the day another was seen in the same locality. Two days later, December 30, I saw two of the birds along the highway between Chico and Gridley, which seems to substantiate my companion's remark.—FRANK N. BASSETT, *Alameda, California, February 18, 1922.*

Behavior of a Barn Owl in Captivity.—On February 13, 1922, some boys captured alive a Barn Owl (*Aluco pratincola*), in the top of the high school building in Benicia. After passing through several different hands it was finally presented to me on the evening of the same day, and I promptly made from a box a good-sized cage for it with the intention of learning a little about the bird's habits.

As usual with owls this bird's activity was much restricted during the day. Especially on sunny days, or at night when brought into a room where there was an electric light, the bird became very drowsy and to all appearances was fast asleep. It would either stand listlessly or lie forward on its breast, as when incubating, with eyes closed and in a position to avoid the most light. Should someone approach the cage during the day after the bird had been left alone for some time, it would always arouse itself sufficiently to attempt to avoid capture, but, not succeeding, would soon settle down and doze off again and become indifferent to any amount of commotion. In fact, it could be taken from its cage, laid on its back, feet upwards, and in this position would remain motionless, its eyes closed, wings folded and claws drawn tightly together.

Towards evening and at night, and sometimes on cloudy days, it became more lively and would attempt to escape from its cage, several times succeeding. Then he had the larger liberty of the laundry, where his cage was kept; an open window covered by a wire screen kept him from getting out of doors. In the laundry he perched on one of the shelves or on a clothes-line, or else flew back and forth between the perches or towards the window, where he clutched the wire screen with his claws, held on awhile, and then flew back to a perch. When recapturing him I found it advisable to keep my hands away from his claws, as I at first got several bad scratches. If he succeeded in getting a good hold of my hand it was difficult to extract it, as he did not seem satisfied to puncture the flesh by only one tight grasp, but would loosen and tighten his grip intermittently, thus making various wounds. He never bit me, though he held his mandibles open when I was recapturing him as though threatening to seize my fingers.

One evening I brought the cage into the kitchen and placed it on the floor to observe the bird's actions. He was quiet and indifferent until a house cat came in through the back door. This immediately occasioned a display of vigorous activity on the part of the owl. As soon as he spied the cat he began snapping his bill, and let forth a series of long, shrill screams of some five seconds duration, with an intermission between each of about the same length. This was kept up for about half an hour, or until the cat left the room. During all this time, backed into one corner of the box, he kept his wings raised high above his head, his whole body swaying slowly from side to side, and eyes open to their full extent, following the cat as it moved about the room.

Much to my disappointment I had difficulty in feeding him. I placed sparrows, raw beef, liver and mice in his cage but he would not voluntarily eat any of these. I succeeded in forcing two house mice into his throat, the bones and fur of which he later expelled in pellets. He accepted a little raw beef which was also forcibly fed to him; liver he would not retain but promptly expelled it. His attitude towards food was one of indifference; he made no effort to avoid being fed and no effort to feed himself. A sparrow which I skinned and fed to him he kept down, but several others freshly killed and placed in his box he did not touch. I thought he would soon begin to eat of his own

accord, but much to my surprise and regret on the morning of the 20th, just a week after his capture, I found him dead in the bottom of his cage.

I am recording these notes in the belief that some observer who has had the opportunity of studying the Barn Owl in captivity would be interested in my experience with this individual. I have had Screech and Burrowing Owls in my possession for several days, but they all ate eagerly and voluntarily the food given them, and when released were in fine physical condition. I am wondering if the bird's behavior as reported above, especially as regards difficulty in feeding, was peculiar to this individual or characteristic of the species when kept in confinement.—EMERSON A. STONER, *Benicia, California, March 1, 1922.*

Bird Drives in the Yukon Delta.—In the spring of 1913, in company with Claud J. Roach, I made a trip by dog team from Bristol Bay, Alaska, to the Yukon River and back by way of the Kuskoquim River. The journey was made primarily to make certain investigations of the fur-bearing animals of the region for the United States Bureau of Fisheries, but an opportunity was afforded to make observations on other forms of life as well. Bethel, a town near the head of tidewater on the Kuskoquim, was made our headquarters for nearly two months. While there, we were greatly impressed by the vivid accounts we heard of the great bird drives which are held annually out on the Yukon delta. The stories came from so many sources, apparently reliable, and all so agreed in the essential details, that there seemed to be little doubt of the accuracy of the main features. Nevertheless, the drives seemed to be so unique that I had hoped to be able to check the statements by personal observation before making any report of them. But the likelihood of my being able again to visit the region is growing more and more remote, so it seems best to call the attention of others to the matter. Perhaps someone may be able to visit the place at the proper time to witness one of these events. Therefore, the account is repeated as it was given to us by numerous residents. I cannot, of course, vouch for the accuracy of the statements, but those who gave the information seemed entirely reliable.

The drives take place in the salt lagoons in the region south of Nelson Island. Apparently the borders of these are great breeding grounds for ducks and geese, and in August each year the young birds, almost grown but unable to fly, gather in large flocks in the quiet waters to await the maturing of the plumage before the southward flight. Their numbers are greatly increased by the adult birds, which at this season lose their wing feathers and are unable to fly. The cast-off feathers are so abundant that they form windrows on the shore lines.

The drive is made by the natives in their kyaks. Fifteen to twenty of these skin boats take part, one man to each. They beat the grassy banks and the water with their paddles and gradually drive the birds by thousands into some pocket or head where they are killed with sticks and spears with a great hurrah and much excitement. One drive in 1912 was said to have resulted in the capture of fourteen boat loads. Just how many birds this would represent is difficult to determine, but it would certainly be more than a thousand. I have seen a native take his wife, three children and several dogs, as well as his camp outfit, from beneath the hatch of one of these boats, and an estimate might roughly be made from this of the number of birds taken.

Some persons might be inclined to criticise the native for such wholesale slaughter, but they are advised to await an impartial investigation before doing so. Perhaps the people are entitled to them. The country is bleak and inhospitable; so much so that white men can scarcely get there at all. The inhabitants live much of the time upon raw food, chiefly the black fish of the interior delta lakes. Away from the coast they have no fuel whatsoever except a little seal oil which they take for their lamps. Yet they seem to be the healthiest, happiest, albeit the dirtiest, of all Alaska natives.—G. DALLAS HANNA, *California Academy of Sciences, San Francisco, March 23, 1922.*

Black and White Warbler in Southern California.—I note that in THE CONDOR of September, 1921, in the Field and Study department, the "sixth occurrence of the Black and White Warbler" in California is recorded. It may be of interest to CONDOR readers to know that I saw a Black and White Warbler on the trunk of an old olive tree about fifteen feet from my window on October 14, 1908. Being an amateur at bird study I

did not, at the time, know the rarity of the object of my vision. However, there is no question in my mind as to its identity. It crept up and around the trunk of one tree and then did the same on another tree, in full view from the window.—MRS. T. F. JOHNSON, *National City, California, March 27, 1922.*

Ring-necked Ducks in Golden Gate Park, San Francisco, California*.—On the morning of March 6, 1922, Mr. C. R. Thomas, of the Audubon Association of the Pacific, kindly telephoned to Dr. Barton Warren Evermann, of the California Academy of Sciences, that he had the day before seen some Ring-necked Ducks (*Marila collaris*) on one of the Chain of Lakes in Golden Gate Park. Acting upon this information, Dr. Evermann and I repaired to the scene and found the ducks still there. We found Mr. A. S. Kibbe, president of the Audubon Association, also on the ground for the same purpose as ourselves. At the time of this visit the ducks were asleep on the water with their heads laid on their backs, and, as the light was not good, it was difficult to distinguish the female of this species from the Ruddy Duck (*Erismatura jamaicensis*).

As the light was better in the afternoon I took Mr. Chase Littlejohn with me and found matters much improved on the lake. The light was just right and the birds were moving around. As a result of this we succeeded in counting seven males and twenty females in the flock. On this occasion we met Mrs. Jane Schlesinger close to the lake and had the pleasure of showing the ducks to her. Mr. Littlejohn states that this species of duck used to be quite common on the southern part of San Francisco Bay, and that he had seen many flocks of them, as well as many of the birds brought in to Redwood City by hunters. But this was the first time I, myself, had ever had the opportunity to see a flock of these ducks. Mr. Kibbe has already made a brief report of the event in the *Gull* (vol. 4, no. 3), but it seemed of sufficient importance to warrant enlarging upon and presenting to the readers of the CONDOR.—JOSEPH MAILLIARD, *San Francisco, March 23, 1922.*

Field Notes from Riverside and Imperial Counties, California.—On March 27, 1922, I took a nest with one egg of the Mexican Ground Dove (*Chaemepelia passerina pallescens*) at Winterhaven, Imperial County, across the Colorado River from Yuma, Arizona. The female was incubating. I had been observing the pair for some moments. When first seen they were perched side by side on a slender branch near the nest. They then flew to the ground and copulated. The nest was in a slender willow on the edge of an irrigation ditch, about eight feet from the ground, wedged between the main trunk and one slender branch. I saw two other pairs of Ground Doves in the same general region, one of which was evidently also nesting, as the female returned persistently to the same clump of bushes.

The only other published record of the nesting of this species in California of which I am aware is that of Leo Wiley for Palo Verde, Imperial County (Condor, vol. 18, 1916, p. 230). The time of nesting is not mentioned in his note. Gilman (Condor, vol. 13, 1911, p. 54) says that the earliest nest found at Pima, Arizona, was on July 7.

Lark Buntings (*Calamospiza melanocorys*) were seen in small flocks at four different points between Banning and Yuma, feeding in washes or in open fields. One flock of about thirty birds was noted at the head of San Gorgonio Pass about a mile below Banning. On January 3, 1922, a flock of about twenty was noted at Thermal.

About a mile below Banning the last Cactus Woodpecker (*Dryobates scalaris cactophilus*) was noted. A single Lesser Yellow-legs (*Totanus flavipes*) was seen near Brawley on March 28, feeding with a flock of about twenty Greater Yellow-legs.—RALPH HOFFMANN, *Carpinteria, California, April 4, 1922.*

Some Water Birds Seen in San Gorgonio Pass.—Several species are seen regularly passing overhead during the migrations. Large flocks of White Pelicans (*Pelecanus erythrorhynchos*) go over in spring and fall. They usually fly at a great height, in V-shaped flocks, occasionally circling about for a while before going on. Wild Geese of several species appear in the spring, and Cranes (*Grus canadensis* or *G. mexicana*) go over occasionally.

The reservoir at Banning attracts many water birds. Cormorants (*Phalacrocorax auritus albociliatus*) are frequently seen there, and Mallards (*Anas platyrhynchos*) and

*Contribution No. 147 from the California Academy of Sciences.

other ducks drop in from time to time. Of rarer species I have seen one Black Tern (*Hydrochelidon nigra surinamensis*), a young bird in first year plumage, the Wilson Phalarope (*Steganopus tricolor*) and Northern Phalarope (*Lobipes lobatus*), and one Least Sandpiper (*Pisobia minutilla*). The Spotted Sandpiper (*Actitis macularia*) is often seen about the edge of the reservoir. The Killdeer (*Oxyechus vociferus*) is common in the ploughed fields. I have seen both the Anthony Green Heron (*Butorides virescens anthonyi*) and the Black-crowned Night Heron (*Nycticorax nycticorax naevius*) hereabouts.—R. A. BRAMKAMP, *Banning, California, December 21, 1921.*

EDITORIAL NOTES AND NEWS

Many years ago one of our foremost ornithologists claimed a certain species of bird as "his own", because, while it had been named by another man, he, himself, was first able to give a satisfactory description of the species. We can smile at the "claim", perhaps; today we disallow it. Of the valid credit he acquired by information given out regarding this species and many others, there is no question. The incident seems amusing now, in the general acceptance of uniform nomenclatural rules, but the lesson conveyed may still be read. To claim "credit" or "priority" will not secure it; it comes unsought if it is deserved. It is a matter of congratulation that ornithology today is practically free from bickering and jealousy between individuals, and that as a rule a spirit of mutual helpfulness prevails.

An immensely useful feature of our contemporary magazine *Bird-Lore* is the School Department which is conducted under the auspices of the National Association of Audubon Societies. Dr. Arthur A. Allen of Cornell University is editor of this department. As is to be expected under Dr. Allen's editorship, the material presented is well chosen, rigidly authentic, and couched in sober language. The educational function of the Audubon Societies, thus performed, is an exceedingly worthy one.

In *The Ibis* for April, 1922, Mr. J. H. Gurney writes "on the sense of smell possessed by birds", an article that is well worth reading. Details of observations made far and wide, on various species of birds, by many different people, are brought together, as well as arguments, for and against, in the disputed question of whether or not the sense of smell is used by birds in their search for food, or for other ends. While it is well for any ornithologist to have a grasp of what has been done in this field, still an elaborate resume of opinions and controversies (perhaps the major part of the literature on this subject) together with such obviously inadequate, frequently accidental, "experiments" as compose most of the recorded observations, should be no more than a preliminary to studies of a more conclusive nature.

Here, again, is a field for those who, disliking to kill birds, still wish to make some substantial contribution to ornithology. To carry on the discussion on the basis of the disputed observations so far placed on record, is to put ornithologists in the same class as certain clerical disputants of the Middle Ages, whose serious activities are now an unfailing subject of humor, discussing heatedly, for example, the number of legs possessed by a fly, without descending to the vulgar expedient of counting them. To carry on a series of experiments here in California, and experiments that should be conclusive, would seem to be a simple matter for anyone with a little time to devote to the subject. The Turkey Vulture, an obvious subject for such experimentation, is abundant throughout most of California. It would take but little ingenuity to devise and carry out a series of observations upon the habits of this species, based perhaps upon baits, concealed and otherwise, the results of which would explain at least the method by which this bird discovers its food. Furthermore, such experiments could be conducted without offending even the most rabid bird protectionist or anti-animal-experimentalist—without the need even of such official permits as are called for in the banding of birds.

The ornithologists of Washington, D. C., met at the home of Mr. B. H. Swales, 2921 Albemarle St., Chevy Chase, D. C., on March 14, 1922, and organized an ornithological club to be known as the Baird Club, in honor of Prof. Spencer F. Baird. Dr. A. K. Fisher was elected President, Mr. Robert Ridgway, Honorary President, Mr. Ned Hollister, Vice President, and Mr. B. H. Swales, Secretary. The membership of the club is restricted to those primarily interested in birds. Meetings will be held monthly at the members' homes, for more or less informal social intercourse.

The Cooper Prize in Ornithology ($50.00), offered at the University of California for the best essay on any topic concerned with birds, has been won by Mr. Robert C. Miller. His thesis, "A Study of the Flight of Sea Gulls", was unanimously chosen by the

committee of award from among the several essays offered. It will be printed in an early issue of The Condor.

We hear that Mr. E. R. Kalmbach of the U. S. Biological Survey has been working on the problem of controlling blackbirds in the Imperial Valley. These birds have responded very favorably to the irrigation and cultivation of that territory; their numbers are now so great that damage to certain crops is reported to be heavy.

After five years of active field work in the state of Washington for the U. S. Biological Survey, Mr. George G. Cantwell, of Puyallup, has resigned, as of date January 1, 1922. During a good deal of this time Mr. Cantwell has served as assistant to Dr. Walter P. Taylor in the latter's vertebrate survey of the state.

COMMUNICATION

PROBLEMS CONCERNING DESERT BIRD-LIFE

Editor THE CONDOR:

I have had opportunities in the last few years of studying the ornithology, and the fauna generally, of some of the deserts of the Old World. I have come to the conclusion that the desert birds are particularly worthy of study from an ecological point of view because they live in an environment which has been unspoilt by man and because their reactions to their peculiar environment are, in some cases at any rate, very easily observed. I have also come to the conclusion that the accepted interpretation of some of the most obvious features of desert life requires revision. May I appeal to your readers to send me any facts, or any ideas, which bear on such problems as the following, so that I may compare our Old World fauna with yours. Eventually I hope to publish a summary of my results.

1. The surface of the desert soil heats up to a very high temperature in the daytime and cools very rapidly at night. Do birds which nest on the ground in American deserts commence incubation as soon as the first egg is laid? Have you any birds which lay right out in the open without the shelter of a bush, as is done by Coursers, Stone Curlew and Sand Grouse with us? Some of these birds lay in May, or even in June and July; at the very height of summer, and it is difficult to see how the eggs avoid being cooked if incubation is not continuous from the date the first egg is laid.

2. I should be grateful for information as to the water supply of the chicks of desert birds. Our Sand Grouse fly a very great distance to water, once a day, and the males saturate the breast feathers with water and bring it back to the chicks, who drink from the breast. We know nothing about the water supply of other desert chicks; but one presumes that their requirements are high, because only by evaporation can they keep their bodies cool.

3. The prevalent color of desert birds is of course roughly that of their environment; this is true also of their chicks. I am inclined to think that it is not true of the eggs. The egg of such a bird as the Stone Curlew, or Courser, is of the familiar type characteristic of the ground nester, but it is not specialized in the direction of being paler or less blotchy. It is in fact a typical ground breeder's egg, not a typical desert breeder's egg. What do American oologists say?

4. We regard the sandy color of desert birds as protective, and so it is, under certain circumstances. With us, many desert birds are running about feeding in early morning and late evening; the sun is low and they cast long black shadows and are quite conspicuous. In these cases the protection must at any rate be very incomplete. Then, again, our Eagle Owl is a powerful bird, nocturnal, and found over a large part of western Asia and Europe and North Africa. Many subspecies are described, and the desert ones are all pale and more or less sandy in color. Of what possible value is this to the bird? Does the theory of protective coloration fit the facts as regards birds in North American deserts? Have you any species of birds in America which produce red forms on red desert, gray on gray desert, pale on sandy desert, etc?

I have trespassed too far on your space already. If any American ornithologist is good enough to write to me, to discuss these problems or furnish me with facts, I shall be extremely grateful. Would my correspondents remember that I am quite ignorant of American birds, and furnish scientific names, and state even the obvious facts which *you* all know?

I remain, Sir, yours,

P. A. BUXTON,

Government Laboratory, Jerusalem, Palestine, February 27, 1922.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

FEBRUARY.—The regular meeting of the Northern Division of the Cooper Ornitholog-

ical Club was held at the Museum of Vertebrate Zoology on February 23, 1922, at 8 P. M. Vice-president Cooper was in the chair, and other members present were: Mesdames Allen, Frederick, Grinnell, Kelly, Mead, Schlesinger and Van Gaasbeck; Messrs. Bryant, Bunker, Evermann, Grinnell, Willard Grinnell, Keeler, Mailliard, Storer, Stow and Strong. Visitors present were: Mrs. Bryant, Miss Fisher and Mr. Kross.

The minutes of the January meeting of the Northern Division were read and approved, and the minutes of the December and January meetings of the Southern Division were read.

Letters relative to the Salt Lake meeting of the Pacific Division of the American Association for the Advancement of Science were reported, and the secretary was instructed to write to officers of the Intermountain Chapter asking them to represent the Northern Division in the arrangements for, and the conduct of, a meeting at that time.

Since no reply had been received from the Regents of the University with regard to the resolution passed at the last meeting of the Division, it was voted to appoint a committee to continue protests against the destruction of Strawberry Canyon in the interests of commercialized athletics. Mr. Cooper, Mr. Stow and Mrs. Schlesinger were appointed by the chair.

Winter bird notes were then contributed by various members present, the topics ranging from the Condor to the Hummingbird. Adjourned.—AMELIA S. ALLEN, *Secretary.*

MARCH.—The regular meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology on March 23, 1922, at 8 P. M. President Swarth was in the chair, and other members present were: Mesdames Allen, Bamford, Bogle, Frederick, Grinnell, McLellan, Mead, Reygadas, Schlesinger; Messrs. Bunker, Cooper, Dixon, Evermann, Gignoux, Grinnell, Willard Grinnell, Keeler, Kross, Mailliard, McLean, Ritter, and Strong. Among the many visitors were Dr. Bailey, Professor and Mrs. Holmes, Professor Kingsley, Mrs. Swarth and Mr. Thomas.

The minutes of the February meeting were read and approved, and the following names presented for membership: Mr. Charles A. Bryant, San Francisco, by Mr. Bunker; Mr. Archibald W. Bell, Berkeley, by J. Grinnell; Miss Helen Genevieve Corwin, Berkeley, by Tracy I. Storer.

Announcement was made of the probable dedication of the new buildings of the Museum of Comparative Oology at Santa Barbara in April or May, and it was suggested that any member of the Club who might be in the vicinity attend as a representative of the Club. A letter from Mrs. Treganza, secretary of the Intermountain Chapter, reported the preliminary steps taken to insure a successful meeting at Salt Lake in June. Mrs. Allen was elected to represent the Club as a judge in the competition for the Cooper Prize in Ornithology. Mr. Cooper reported for the stadium committee, and the committee was retained for final action.

Business completed, Professor William E. Ritter presented a paper entitled "Further Observations on the Activities of the California Woodpecker". After discussion the meeting adjourned.—AMELIA S. ALLEN, *Secretary.*

SOUTHERN DIVISION

FEBRUARY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum, February 23, 1922, at 8 P. M. President Rich was in the chair, with other members present as follows: Messrs. Appleton, Barnes, Bishop, Howell, King, Lamb, Little, Law, Pierce and Ross; and Mrs. Law. Mrs. Bishop, Mrs. Barnes, Mrs. Howell and Miss Sykes were visitors. In the absence of the secretary, Mr. Chambers was appointed secretary pro tem.

The following applications were presented: George C. Thomas, Los Angeles; Henry W. Davis, Ventnor, N. J.; Herman W. Nash, Pueblo, Colo.; Alvin R. Cahn, College Station, Texas; James Randolph Burns, Des Moines, Ia.; Mrs. Omie Stephenson, Monte Vista, Colo.; and John Elliot Patterson, Ashland, Ore., all by W. Lee Chambers. Egmont Z. Rett, Denver, Colo., and Frederick W. Miller, Denver, Colo., by Horace G. Smith. Edward H. Wagner, Stockton, Calif., by A. B. Howell. Mrs. Bertha L. Dart, Montevideo, Minn., by Dr. Warmer. Dix Teachenor, Kansas City, Mo., by Harry Harris. The names of Mrs. John L. Cole and Martin C. Paulson, of Nevada, Ia., were received from the Northern Division.

A letter from Mr. P. A. Taverner, opposing further splitting of avian genera, was read by Mr. Law, and was the cause of considerable discussion. Business concluded, Dr. Bishop talked on some birds he had recently taken in this locality. Followed a period of general discussion of bird matters. Adjourned.—L. E. WYMAN, *Secretary.*

For Sale, Exchange and Want Column. — Any Cooper Club member is entitled to one advertising notice in each issue free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address W. LEE CHAMBERS, *Altadena, Los Los Angeles County, California.*

FOR SALE—Back numbers of THE CONDOR, dating from 1910 to 1921; also of Bird-Lore from 1906 to 1918.—GRETCHEN L. LIBBY, *310 Second Ave., Santa Barbara, Calif.*

FOR SALE FOR CASH—Bulletin Cooper Club and Condor, volumes 1 to 6 inclusive, complete, except no. 6 of volume 1; Oologist, volume XI (1894) complete, volume X (1893) complete, except April, July and November. WANTED—will pay cash: "Life Histories of North American Birds," Bendire, volumes 1 and 2; "Life Histories of North American Diving Birds," Bent.—W. B. SAMPSON, *1005 North San Joaquin Street, Stockton, California.*

WANTED—Birds of North and Middle America, Ridgway, vols. I, II, III, V, VI, for cash or British Columbia bird skins.—J. A. MUNRO, *Okanagan Landing, British Columbia.*

FOR SALE—Swainson & Richardson, Fauna Boreali-Americana, vol. 2, "Birds"; Cassin, "Illustrations of the Birds of California"; Seebohm, "Geographical Distribution of the Charadriidae"; McIlwraith, "Birds of Ontario".—HARRY S. HATHAWAY, *Box 1466, Providence, R. I.*

NESTINGS OF THE YELLOW RAIL—Monograph on this subject about to be published. Fully illustrated. Only photo-portrait of a live Yellow Rail in existence. Intimate records of twenty years. Only four other breeding records known. Orders accepted for separates. Thirty cents, silver, must be deposited. Price, a small advance over cost.—P. B. PEABODY, *Blue Rapids, Kansas.*

WANTED—Coues' Bibliography, Fourth Installment; Proceedings U. S. National Museum, vol. 19.—FRED M. DILLE, *Valentine, Nebraska.*

FOR SALE—Splendidly prepared skins of Costa Rican birds, very ample data, in collections of pairs or species, of forms available. Reasonable prices.—AUSTIN SMITH, *Apartado 412, San Jose, Costa Rica, C. A.*

FOR DISPOSAL—A small assortment well prepared mammal specimens, approx. fifty in number, from the arid portions of Oregon, east of mountains, for $40 and charges collect. List on application. Also a 20 gauge new Fox double barrel hammerless shot gun, with or without a fitted .38 auxiliary, $30 or $35.—FRED M. DILLE, *Valentine, Nebraska.*

FOR EXCHANGE—For eggs, books, mammal skins or cash: Handbook of Birds of Eastern N. A., Chapman. Handbook of Birds of Western N. A., Bailey. Birds of South Dakota, Over & Thoms. History of Birds of Kansas, Goss. Cat. of Birds of Kansas, with descr. of nests and eggs, Goss. Raptorial Birds of Iowa, B. H. Bailey. Key to Land Mammals of Northeastern N. A., Miller. Portfolio of 106 col. plates by Fuertes, from Eaton's Birds of N. Y. Skins of Canadian Red and Canadian Flying Squirrels.—Lieut. L. R. WOLFE, *64th U. S. Inf., Plattsburg, N. Y.*

FOR DISPOSAL—All prices cover carrier charges. Complete sets Auk, vols. 1 to 31, with one vol. Index special to 1900, $150. Bird-Lore, vols. 1 to 16, $35, bound. Ridgway's Birds America (Bulletin 50), Parts 1 to 7 inclusive, $23. Condor, vols. 1 to 16, $49. This includes Bulletin Cooper Club. Childs' Warbler, Second Series, vols. 1 and 2, $2.50. Proceedings U. S. Nat. Museum, vols. 14, 21, 22, $1.25 each. Silloway, Montana, three parts, $2.25. Canadian Birds, Macoun, three parts, $2.50. Hornaday, Vanishing Wildlife, $1.10. Fisher's Hawks and Owls, $4.10. Coues' Birds Northwest, $2.50. Through the MacKenzie Basin, MacFarlane, $2.25. Ridgway's Hummingbirds, $1.50. Over forty issues of Osprey, almost complete set, $8. Ridgway's Manual, $4. Author's separate, Hayden Survey, 1878, vol. 4, part 1, paper, $2.25. Hayden 12th report, two parts, Wyoming, Idaho, Yellowstone Park, $2.50. Bendire's Life Histories, part 2, bound, $8. Cooke's Birds Colorado, three papers complete, $3. Pacific Coast Avifauna, nos. 1 to 9, at forty percent quoted prices, new.—FRED M. DILLE, *Valentine, Nebraska.*

MEETINGS OF THE COOPER ORNITHOLOGICAL CLUB

Northern Division: 8 P. M., *fourth Thursday* of month, at Museum of Vertebrate Zoology, University of California, Berkeley. Take any train or car to University Campus. The Museum is the corrugated iron building on south side of campus just north of football bleachers.—MRS. AMELIA S. ALLEN, *Sec'y, 37 Mosswood Road, Berkeley, Calif.*

Southern Division: 8 P. M., *last Thursday* of month, at Museum of History, Science, and Art, Exposition Park, Los Angeles. Take car marked "University", westbound on 5th Street (in down-town district); get off at 39th Street and Vermont Avenue. One long block east to Park. The Museum is the building with the large dome.—L. E. WYMAN, *Sec'y, care of Museum.*

Intermountain Chapter: Get date and place from the Sec'y, ASHBY D. BOYLE, *351 5th Ave., Salt Lake City, Utah.*

San Bernardino Chapter: Get date and place from the Sec'y, M. FRENCH GILMAN, *Banning, Calif.*